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THE SECRETARY OF DEFENSE
WASHINGTON

MAY 27 1960

Dear Mr. President:

A summary of progress of the ICBM and IRBM programs during January, February, and March 1960 is attached.

During the subsequent period to date, the following noteworthy events have occurred.

Four ATLAS missiles were flight tested. Two were successful, one was partially successful, and one was destroyed by an explosion during launch. The successful flight of ATLAS 25D on 22 April was the first ATLAS launch from a complex having horizontal missile storage capability. According to preliminary data this missile was the most accurate on target recorded in the program to date. The launch was made by a Strategic Air Command crew from Vandenberg Air Force Base. The successful flight of ATLAS 56D on 20 May from the Atlantic Missile Range had a range of 9,000 statute miles. The missile carried an operational type nose cone as well as approximately 1,000 pounds of research and development instrumentation. On 24 May, an ATLAS-AGENA rocket successfully boosted into orbit MIDAS II, an experimental 5,000-pound infra-red sensing, early warning satellite.

Four successful flight tests of TITAN missiles over the Atlantic Missile Range were conducted. One of the missiles, TITAN G7, launched on 13 May, was the first to carry the operational type re-entry vehicle.

Two MINUTEMAN test vehicles were successfully fired to terminate a series of silo development test launches. The series was originally scheduled for 15 launches but eight completely successful tests have confirmed the adequacy of the simple silo design.

The fourth and last THOR squadron was turned over to the Royal Air Force in April.

In the POLARIS program, six launchings of ALX flight test vehicles were conducted. Four were successful, one was partially successful and preliminary data from the latest flight on 23 May, a launching from the Weapon System Test Ship, USS OBSERVATION ISLAND, indicate that all test objectives were achieved. The second Fleet Ballistic Missile submarine, USS PATRICK HENRY, was commissioned on 9 April and is undergoing tests and trials.

With great respect, I am



Faithfully yours,

J. M. H. Douglas
DEPUTY

Attachment

The President

The White House

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By *SP-1* NLE Date *11/16/77*

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SUMMARY

ATLAS (ICBM) PROGRAM

Seven ATLAS missiles were launched during the first quarter of Calendar Year 1960. Six flights were successful and one missile exploded at lift-off because of high frequency combustion instability in a booster engine. Included were a successful launch by a Strategic Air Command crew and a successful first flight test of the ARMA all-inertial guidance system (recording but not guiding).

The MA-3 propulsion system has completed qualification tests.

The Mark 3 re-entry vehicle with slightly altered flare (to improve stability) was test flown on ATLAS 49D with excellent results.

ATLAS production is on schedule and adequate for all needs.

Three missiles are installed on the launchers of the first operational squadron at Warren Air Force Base. These are being checked out with ground support equipment for turnover to the Strategic Air Command in May. Three more missiles are at Warren for installation on the remaining three launchers of the 564th Strategic Missile Squadron and turnover to the Strategic Air Command.

TITAN (ICBM) PROGRAM

The TITAN flight test program progressed well during this quarter. Three of the five flights were 100 percent successful, the other two were partially successful.

The completely successful flight of TITAN G4 on 24 February was significant as it proved the design integrity of the missile and its subsystems. This first Lot G flight test missile was also the first to have all subsystems operational.

TITAN engines continued their outstanding flight record during the quarter. The TITAN booster engines have never malfunctioned during a flight.

Construction of TITAN operational and training facilities progressed in an orderly and satisfactory manner during the quarter.

Development of the non-cryogenic TITAN Weapon System is proceeding at a rapid pace.

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MINUTEMAN (ICBM) PROGRAM

Two full-thrust, full-scale MINUTEMAN silo-test missiles were successfully fired during this quarter. Both were equipped with movable nozzles and autopilot control. One was of flightweight construction, closely approximating the configuration of the R&D flight test program missiles. These tests confirmed the adequacy of the simple silo design for the operational MINUTEMAN force.

Progress of the MINUTEMAN guidance system is being closely monitored. The contractor is being assisted in correcting certain management deficiencies, and the schedule should be recovered.

The severe problems of nozzle throat erosion and internal case insulation failure have been partially solved during the quarter.

Stage I, the largest solid-fueled rocket engine under development in this country, remains the most critical component.

Geologic and surface explorations continued near Malmstrom Air Force Base, Montana, to validate the sites selected for 15 launch control centers and 150 silo launchers of the first three operational squadrons.

R&D flight test and related technical facilities at the Atlantic Missile Range are essentially on schedule with only minor shortages brought about by the steel strike.



THOR (IRBM #1) PROGRAM

Sufficient warheads for one squadron are split between the first two squadrons. Although the first three squadrons have been completely checked out by the U.S. Air Force to include nominal 15-minute count-down demonstrations, it is estimated that only three missiles could be launched in 24 hours and six in 48 hours because of the "training" status and warhead problem cited above.

The United Kingdom has been concerned as to the beginning date of the United States five-year support period for the THOR. The U.S. Air Force has defined this as beginning at the time when full unit equipment arrives on location for each squadron. To simplify matters, the date has been averaged with 1 November 1959 established as the initial support date for all squadrons.

A portion of the Royal Air Force 77th Strategic Missile Squadron returned to the United States in early September 1959 and successfully launched the first combat training missile on 6 October 1959 from Vandenberg Air Force Base. The Royal Air Force 97th Strategic Missile Squadron

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successfully launched the second combat training missile from Vandenberg on 2 December. The Royal Air Force 77th Strategic Missile Squadron successfully launched the third Combat Training Launch missile on 2 March 1960.

The status of Royal Air Force units in the United Kingdom is as follows:

<u>Unit</u>	<u>Turnover Dates</u>	<u>Location</u>
RAF 77th	June 1959 (accomplished)	Feltwell, UK
RAF 97th	September 1959 (accomplished)	Hemswell, UK
RAF 98th	December 1959 (accomplished)	Driffield, UK
RAF 144th	May 1960	North Luffenham, UK

JUPITER (IRBM #2) PROGRAM

Two JUPITER R&D Missiles were successfully fired during the first quarter of Calendar Year 1960. The R&D firing program was completed with the firing of JUPITER R&D Missile 30 on 4 February 1960. A total of 29 missiles was fired in the JUPITER R&D program.

The JUPITER IRBM met its Circular Probable Error requirements of 0.81 nautical miles or 1500 meters. The failure rate of only 6.9 per cent significantly demonstrates the high degree of reliability of the JUPITER components.

Technical arrangements between the United States Air Force and the Turkish Air Force are progressing satisfactorily. Technical agreements are expected to be signed in the near future.

As of 31 March, three tactical missiles had been deployed to Italy.

There has been a cumulative total of five aerial and four surface shipments of JUPITER equipment and material to Italy.

The first training missile was erected on interim training site number 1 at Gioia del Colle, Italy, on 13 January 1960.

POLARIS (FLEET BALLISTIC MISSILE) PROGRAM

Eleven POLARIS flight test vehicles were launched, nine of which were successful and two were partially successful. Of particular significance was the first fully-guided flight from the Weapon System Test Ship (USS OBSERVATION ISLAND, EAG-154) which, though partially successful with respect to missile performance, was completely successful as a

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demonstration of a weapon system installation practically identical to that of a tactical POLARIS submarine and of the compatibility of this specialized equipment to the missile.

The current basic operational planning is directed toward attaining the recently accelerated ready-for-sea dates and deployment schedule for the nine submarines presently authorized. This schedule is:

<u>Fleet Ballistic Missile</u> <u>Submarines</u>	<u>Ready-for-sea</u>	<u>Normal</u> <u>Deployment</u>
SSBN-598 USS GEORGE WASHINGTON	*13 Jun 1960	*31 Oct 1960
SSBN-599 USS PATRICK HENRY	*13 Aug 1960	*13 Dec 1960
SSBN-600 USS THEODORE ROOSEVELT	17 Dec 1960	4 May 1961
SSBN-601 USS ROBERT E. LEE	1 Dec 1960	1 Apr 1961
SSBN-602 USS ABRAHAM LINCOLN	15 Mar 1961	15 Jul 1961
SSBN-608 USS ETHAN ALLEN	15 Aug 1961	15 Dec 1961
SSBN-609 USS SAM HOUSTON	1 Feb 1962	1 Jun 1962
SSBN-610 USS THOMAS A. EDISON	1 Apr 1962	1 Aug 1962
SSBN-611 USS JOHN MARSHALL	1 Jun 1962	1 Oct 1962

* Unchanged

To be ready for deployment, the submarines must have satisfactorily completed required tests and trials, must carry sixteen production-type missiles, be manned by a trained crew, and supported by operational tenders and shore activities.

The outlook for the Fleet Ballistic Missile Weapon System is that the accelerated operational plan described above will be met.

Fifty-six flight tests of POLARIS missiles have been conducted (to 31 March 1960) of which thirty-eight were successful, sixteen partially successful, and two unsuccessful. These flights employed three types of vehicles, as follows:

<u>POLARIS</u> <u>Series</u>	<u>Total</u>	<u>Successful</u>	<u>Partially</u> <u>Successful</u>	<u>Unsuc-</u> <u>cessful</u>
FTV (Flight Test Vehicles)	22	21	--	1
AX	17	5	11	1
ALX	17	12	5	--

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